U.S. EPA Science Advisory Board
Environmental Engineering Committee
FY 2004 Member Biosketches

Environmental Engineering Committee

Crittenden,John C.

Arizona State University

John C. Crittenden is Richard Snell Presidential Chair of Civil and Environmental Engineering,, Department of Civil and at Arizona State University. He received a B.S. in Chemical Engineering and was awarded M.S. and PhD in Civil and Environmental Engineering by the University of Michigan. Dr. Crittenden's main research and teaching interests have been in these areas: Sustainability, Pollution Prevention, Physical-Chemical Treatment Processes (Ion Exchange, Oxidation processes, Catalytic Oxidation, Photocatalytic Oxidation, Electrocatalysis, Adsorption, Electro-Adsorption, Air Stripping), Transport of Organics in Saturated and Unsaturated Groundwater, Modeling of Fixed-Bed Reactors and Adsorbers (Photocatalysis, Low Temperature Catalysis in Aqueous and Gas Phases, Transport of Organics in Saturated and Unsaturated Groundwater), Sol-Gel Chemistry for Preparation of Zeolites and Catalysts, Surface Chemistry and Thermodynamics (Prediction of Adsorption Capacities and Surface Catalyzed Rate Constants), Mass Transfer, Numerical Methods, Modeling of Wastewater and Water Treatment Processes. Dr. Crittenden has successfully directed over 36 research projects with a total budget of over 20 million dollars. Some of the more notable projects he has been responsible for include: 1) Center for Clean Industry and Treatment Technologies (This is a 8 year project funded at a level of 10 million dollars.); 2) the development of a process which uses sunlight or artificial lights, photocatalysts and adsorbents to destroy aqueous and gas phase organic contaminants; and 3) an evaluation of the water treatment system for the space station Freedom. The research projects which he has directed or been involved with over the past 20 years have resulted in over 100 publications including reports, journal articles, 2 patents, contributions to colloquia and conferences, and a book. Dr. Crittenden and his students have received 14 national awards including the ASCE Huber Research Prize, two American Water Works Association best paper awards, two Water Environment Federation best paper awards, and the ASCE Rudolph Hering medal. In recognition of Dr. Crittenden's contributions to engineering, he was elected to the National Academy of Engineering in 2002. Dr. Crittenden is Director of the Sustainable Technologies Program at Arizona State and Associate Editor of Environmental Science and Technology.

Dellinger,H. Barry

Louisiana State University

Dr. Barry Dellinger is the Patrick F. Taylor Chair of the Environmental Impact of Treatment of Hazardous Wastes and Professor of Chemistry at Louisiana State University. He is the Director of the LSU Intercollege Environmental Co-operative and the Acting Director of the Biodynamics Institute. He is a member of the US-EPA Science Advisory Board Environmental Engineering Committee. From 1981 to 1998, he was Group Leader of Environmental Sciences and Engineering at the University of Dayton where he also held a joint faculty appointment. From 1978-1981 he was a Senior Project Scientist at Northrop Services Inc. He was a post-doctoral fellow at the University of Pennsylvania from 1976-1978. He holds a Ph.D in Physical Chemistry from Florida State University and B.S. in Chemistry from the University of North Carolina at Chapel Hill. His research interests include origin and control of toxic combustion by-products, thermal treatment of hazardous wastes, pathways of formation of dioxins, gas-phase and surface catalyzed elementary reaction kinetics, and sources/health impacts of environmentally persistent free radicals. He is a recipient of the Charles A. Lindberg Certificate of Merit, the Engineering and Science Foundation Award for Outstanding Professional Achievement, the Wohleben-Hochwald Researcher of the Year Award, the Ohio General Assembly Award for Research Excellence, and co-recipient of numerous EPA STAR research awards. (10/2002)

Dzombak,David

Carnegie-Mellon University

David A. Dzombak is a Professor of Civil and Environmental Engineering at Carnegie Mellon University, a registered Professional Engineer in Pennsylvania, and a Diplomate of the American Academy of Environmental Engineers. He holds a Ph.D. in Civil-Environmental Engineering from the Massachusetts Institute of Technology. The emphasis of his research is on water and soil quality engineering, especially the fate and transport of chemicals in subsurface systems and sediments, wastewater treatment, in situ and ex situ soil/sediment treatment, hazardous waste site remediation, and abandoned mine drainage remediation. Dr. Dzombak has served on the National Research Council Committee on Bioavailability of Contaminants in Soils and Sediments, and on various research review panels for the Department of Defense, Environmental Protection Agency, National Institute of Environmental Health Sciences, and National Science Foundation. He has also served on the Board of Directors and as an Officer of the Association of Environmental Engineering and Science Professors; as chair of committees for the American Academy of Environmental Engineers, American Society of Civil Engineers, and Water Environment Federation; and on advisory committees for various community and local government organizations, and for the Commonwealth of Pennsylvania. Dr. Dzombak was elected a Fellow of the American Society of Civil Engineers in 2002. Other recent awards and honors include an Aldo Leopold Leadership Program Fellowship by the Ecological Society of America and The David and Lucile Packard Foundation in 2000, the Professional Research Award from the Water Environment Association of Pennsylvania in 2002, the Jack Edward McKee Medal from the Water Environment Foundation in 2000, and a Distinguished Service Award from the Association of Environmental Engineering and Science Professors in 1999. (11/2003)

Eighmy,T. Taylor

University of New Hampshire

Taylor Eighmy is a Research Professor of Civil Engineering at the University of New Hampshire (UNH). He received his B.S. in Biology from Tufts University in 1980, his M.S. in Civil Engineering from UNH in 1983, and his Ph.D. in Engineering (Civil) from UNH in 1986. Dr. Eighmy directs the Environmental Research Group (ERG), an applied environmental engineering and environmental science research center at UNH. He also directs the Recycled Materials Resource Center (RMRC), a partnership with the Federal Highway Administration, to promote the wise use of recycled materials in highway construction. He presently serves on the Advisory Board of the New Hampshire Estuaries Project, a partnership between the New Hampshire Office of State Planning and the U.S. EPA's National Estuaries Program. He also serves on the National Steering Committee of the U.S. DOE's Combustion Byproduct Recycling Consortium. Formerly, he was appointed to and served on the New Hampshire Waste Management Council (1988-1995); the Council has solid and hazardous waste adjudicatory and rule making authority. He was a member of the International Ash Working Group (IAWG), sponsored by the International Energy Agency, and coauthored the treatise "Municipal Solid Waste Incinerator Residues" with his IAWG colleagues. He received the UNH Excellence in Research Award in 1997. He has research interests in recycled materials characterization and beneficial use, chemical speciation, environmental chemistry of leaching behavior, spectroscopic surface analysis, applied geochemistry, reactive barriers, and environmental microbiology. Dr. Eighmy's present research focus is on contaminant leaching and leaching modeling, use of surface spectroscopies to characterize surfaces where leaching first occurs, contaminant fate and transport in beneficial use scenarios within the highway environment, phosphate stabilization of wastes, use of phosphate-based reactive barriers (both permeable and impermeable) for waste containment, and geochemical and microbial characterization of microfracture surfaces in TCE-contaminated bedrock. His present research is supported by FHWA, NOAA, U.S. EPA, the European Union, and the private sector. (11/17/03)

Galloway,James

University of Virginia

Dr. James N. Galloway is Professor of Environmental Sciences at the University of Virginia. Dr. Galloway received the B.A. degree in Chemistry and Biology from Whittier College in 1966 and the Ph.D. degree in Chemistry from the University of California, San Diego in 1972. Following a postdoctoral appointment with Gene Likens at Cornell University, he accepted a position as Assistant Professor of Environmental Sciences at the University of Virginia in 1976. He served as President of the Bermuda Biological Station for Research from 1988 to 1995, and as chair of Environmental Sciences, University of Virginia from 1996 to 2001. He is the chair of the International Nitrogen Initiative, a program sponsored by SCOPE and IGBP, and is a member of the EPA Science Advisory Board. In 2002 he was elected a Fellow of the American Association for the Advancement of Science. His research on biogeochemistry includes the natural and anthropogenic controls on chemical cycles at the watershed, regional and global scales. His current research focuses on beneficial and detrimental effects of reactive nitrogen as it cascades between the atmosphere, terrestrial ecosystems and freshwater and marine ecosystems. (11/18/2003)

Hughes,Joseph B.

Georgia Institute of Technology

Joseph B. Hughes is Professor and Chair in the School of Civil and Environmental Engineering at Georgia Institute of Technology. After earning a B.A. in Chemistry from Cornell College in Mount Vernon, Iowa, he was awarded and M.S. and Ph.D. in Civil and Environmental Engineering from The University of Iowa. Dr, Hughes is a Registered Professional Engineer in the State of Texas. His research interests lie in the area of biological treatment of wastes and the bioremediation of contaminated sites, soil, and groundwater, especially anaerobic processes. He is Member and Chair, West Coast Hazardous Substances Research Center Science Advisory Board, 2002-present, member of the Association of Environmental Engineering and Science Professors (AEESP) Strategic Planning Committee, 2002 and of the National Research Council Committee on Bioavailability of Contaminants in Soils and Sediments, 2000 to present. (This biosketch should be checked with Dr. Hughes who is on travel Nov 12-21)

Kavanaugh,Michael

Malcolm Pirnie, Inc.

Dr. Michael C. Kavanaugh is Vice President and the National Science and Technology Leader for Malcolm Pirnie, Inc. He is a chemical and environmental engineer with over 27 years of consulting experience. He has provided a broad range of consulting engineering services to private and public sector clients both in the U.S. as well as western Europe and parts of Asia. His areas of expertise include hazardous waste management, site remediation with an emphasis on groundwater cleanup, strategic environmental management, risk analysis, water quality and water reuse, water treatment, industrial and municipal wastewater treatment and technology evaluations including patent reviews. Dr. Kavanaugh has been project engineer, project manager, principal-in-charge, technical director or technical reviewer on over 200 projects covering a broad range of environmental issues. Dr. Kavanaugh has prepared over 35 peer reviewed technical publications, edited two books, and has made over 100 presentations to technical audiences as well as public groups. Dr. Kavanaugh was the Chair of the Water Science and Technology Board of the National Research Council from 1989 to 1991. During this time, the Board managed or developed over 15 projects related to all aspects of water resources management. From 1994 to 2000, he chaired the Board on Radioactive Waste Management, a Board responsible for evaluating the Nation's strategies for management of radioactive waste. He recently served on the Board of Scientific Counselors, advising the Assistant Administrator of the Office of Research and Development in EPA. Since 2000, Dr. Kavanaugh has served on the Science Advisory Board of the DOD environmental research program, the Strategic Environmental Research and Development Program ("SERDP"). He is currently on the Editorial Advisory Board for the Environmental Science and Technology Journal. He was elected to the National Academy of Engineering in 1998. Dr. Kavanaugh has a B.S. and a M.S. in Chemical Engineering from Stanford and the University of California, Berkeley, respectively. He received his PhD in Civil/Environmental Engineering from UC Berkeley in 1974. He is a registered professional engineer in several states and is a Diplomate of the American Academy of Environmental Engineers, a designation that requires regular confirmation of professional standing. (9/2002)

Kim,Byung

Ford Motor Company

Byung R. Kim is Technical Leader in the Physical and Environmental Sciences Department of Ford Research Laboratory, Dearborn, MI and is a professional engineer. He received the B.S. degree in Civil Engineering from Seoul National University in Korea in 1971 and M.S. and Ph.D. degrees in Environmental Engineering from the University of Illinois, Urbana, IL in 1974 and 1977, respectively. Before joining Ford, he worked as an environmental engineer for Tennessee Valley Authority, taught at the Georgia Institute of Technology, and was a researcher at General Motors Research Laboratories. His current research interest is in understanding various manufacturing emission issues (physical/chemical/biological waste treatment processes and the overall environmental impact of manufacturing processes). He also has worked on the adsorption of organics on activated carbon and water quality modeling. He has served on EPA SAB Environmental Engineering Committee and was Editor of the Journal of Environmental Engineering, American Society of Civil Engineers (ASCE). He served on the advisory board for the National Institute of Environmental Health Superfund Basic Research Program at the University of Cincinnati. He received a Richard R. Torrens Award for editorial leadership from ASCE and two Willem Rudolfs Medals from Water Environment Federation on his publications in industrial wastes. (11/2003)

Koshland,Catherine

University of California, Berkeley

Catherine P. Koshland is the Wood-Calvert Professor in Engineering at the University of California, Berkeley, and Professor in Energy and Resources and in Public Health (Environmental Health Sciences). She is a director and Secretary of the Combustion Institute, and serves on the editorial board of Combustion, Science and Technology . In 1999, she joined a distinguished group when she presented the Nineteenth Annual Steven Manly Memorial Lecturer at the University of California at Santa Barbara. At Berkeley, she is the Chair of the Academic Senate during 2002-2003; she served as Vice-Chair from January 2001-July 2002. She has been a member of the Integrated Human Exposure Committee of the EPA's Science Advisory Board since 2001. Professor Koshland graduated with a B. A. in Fine Arts from Haverford College, studied painting at the New York School of Drawing, Painting and Sculpture, and received her M. S in 1978 and her Ph.D. in 1985. in Mechanical Engineering from Stanford University. She joined the U. C. Berkeley faculty in 1984. She teaches engineering, energy and environmental health, emphasizing mechanistic approaches as well as a systems perspective. Professor Koshland's research is at the intersection of energy, air pollution and environmental (human) health. It is conducted at multiple scales, from mechanistic analyses of combustion products in flow reactors to control strategies in urban airsheds.. Her combustion research has focused on pollutant formation particularly involving chlorinated hydrocarbons and particulates, and the development of advanced diagnostic tools for non-intrusive monitoring of combustion species including chlorinated hydrocarbons, metals and particles. She has worked in green manufacturing and industrial ecology, addressing the conception and assessment of environmental and health dimensions to improve energy and manufacturing technologies. Her work includes critical assessments of regulatory policy. Prof. Koshland served on the California Air Resources Board Research Screening Committee from 1998-2002. Prof. Koshland is Associate Director of the UC Berkeley Superfund Basic Research Program, and Director of Health Effects of Modern Technologies, the Berkeley component of the UC Toxic Substances Research and Teaching Program. She has served on numerous committees at Berkeley, including the Berkeley Campus Strategic Planning Committee from 2000-2002.. A member of the Haverford College Board of Managers since 1994, she has served as its Vice Chair since 1999.

Lifset,Reid

Yale University

Reid J. Lifset is the Associate Director of the Industrial Environmental Management Program and a member of the faculty at the Yale University School of Forestry and Environmental Studies. He did his graduate work in political science at the Massachusetts Institute of Technology and in management at Yale University. His research focuses on the application of industrial ecology to novel problems and research areas, and the evolution of extended producer responsibility. He is currently principle investigator on the Luce Foundation-funded project "Collaborative Industrial Ecology in Asia", a co-principal investigator in the Stocks and Flows (STAF) project at the Yale Center for Industrial Ecology, funded by the National Science Foundation (NSF) and the Nickel Development Institute (NiDI). He is a co-principal investigator on National Institute of Standards & Technology (NIST) and NSF-funded projects on the environmental assessment of bio-based materials. Other recent sources of support include the Garfield Foundation, the U.N. Environment Program and the Hixon Center for Urban Ecology at Yale. He is the editor-in-chief of the Journal of Industrial Ecology, an international quarterly on industry and the environment, headquartered at and owned by Yale University and published by MIT Press. He has served as a consultant to the Science Advisory Board of the U.S. EPA, and is a member of the governing council of the International Society for Industrial Ecology (ISIE), and the Science Advisory Board of Material Flow Analysis for Sustainable Resource Management (MFAStorM) of the Scientific Committee on Problems of the Environment (SCOPE).

McFarland,Michael J. Chair

Utah State University

Dr. Michael J. McFarland received his bachelors' degree in Engineering and Applied Science from Yale University, his masters' degree in Chemical Engin eering from Cornell University, his Ph.D. in Agricultural Engineering from Cornell University and completed his postdoctoral research program in the Dept. of Civil and Environmental Engineering at the University of Texas at Austin. Dr. McFarland is currently an associate professor in the Department of Civil and Environmental Engineering at Utah State University where his research interests are focused in the areas of air quality management, biosolids engineering, industrial waste management and pollution pr evention. Dr. McFarland has served on numerous federal, state and local environmental engineering and public health advisory committees for the US Dept. of Defense, US Environmental Protection Agency, US Dept. of Energy, National Science Foundation, Utah Dept. of Environmental Quality and Cache County, Utah. Dr. McFarland has authored or coauthored over fifty publications in the field of environmental engineering including the recent textbook "Biosolids Engineering" (McGraw-Hill, 2001)as well as numerous research journal articles, conference proceedings and professional engineering (PE) licensing workbooks. Dr. McFarland is a registered professional engineer in the State of Utah and currently holds Grade IV operator certifications for both wastewater and water treatment. Dr. McFarland is a Diplomate of the American Academy of Environmental Engineers (AAEE)as well as a member of several professional environmental science and engineering organizations including the Water Environment Federation (WEF), Society for Risk Analysis, National Biosolids Partnership and the Association of Environmental Engineering and Science Professors (AEESP). (11/2003)

Powers,Susan E.

Clarkson University

Susan E. Powers is a Professor in the Department of Civil and Environmental Engineering and Director of the Center for the Environment at Clarkson University. Dr. Powers' research has focused on understanding the physical and chemical phenomena associated with contaminant transport in subsurface systems, with specific emphasis on organic non-aqueous phase liquids (NAPLs) in complex systems. Her research on NAPL dissolution, the wettability of NAPL-water-mineral systems and the fate of ethanol-blended gasoline in the subsurface is widely cited and considered at the leading edge in her field. Experimental and mathematical modeling techniques are utilized in all research activities. Research that has provided a solid understanding of the environmental fate of oxygenated gasoline has lead to an interest in the application of this science to aid in regulatory and policy decisions. Current projects in this area include life cycle management issues for gasoline, other transportation fuels and energy systems in general. Funding for her research projects has been received from the EPA STAR program, NSF, DOE and the State of California through LLNL.Dr. Powers has been an invited participant at many workshops and symposia related to the environmental impacts of reformulated gasoline. She has served on the Board of the Association of Environmental Engineering and Science Professors and the editorial boards for the Journal of Environmental Engineering, Advances in Water Resources and the Journal of Contaminant Hydrology.

Rood,Mark

University of Illinois

Mark J. Rood is a Professor and the Coordinator of the Environmental Engineering and Science Program in the Department of Civil Engineering at the University of Illinois at Urbana-Champaign. Dr. Rood received his B.S. degree in Environmental Engineering from Illinois Institute of Technology in 1978 and his M.S.E. and Ph.D. degrees in Environmental Engineering from University of Washington in 1982 and 1985, respectively. Professor Rood specializes in air quality engineering. His research and teaching activities pertain to the characterization of the physical, chemical, and optical properties of ambient aerosol, and the capture of gaseous pollutants from gas streams. Professor Rood has completed research resulting in a better understanding of how ambient aerosol influence visibility degradation and climate change. He has also developed new techniques to remove sulfur dioxide, nitric oxide, hydrogen chloride, elemental mercury, mercuric chloride, and hazardous organic vapors from gas streams. His most recent research pertains to the capture and recovery o f hazardous air pollutants for re-use and the adsorption of elemental and ionic mercury from gas streams that are generated during the combustion of coal. He was a member of the Executive Board of the Association of Environmental Engineering Professors, is Editor-in-Chief of ASCE's Journal of Environmental Engineering, and was Associate Editor of the Journal of the Air and Waste Management Association. (November 2003)

Shaw,Bryan

Texas A&M University

Bryan W. Shaw, Ph.D.,is an Associate Professor and mem ber of the Center for Agricultural Air Quality Engineering and Science in the Biological &Agricultural Engineering Department, Texas A&M University. He received his Bachelor of Science and Master of Science degrees in AgriculturalEngineering from Texas A&M University and his Ph.D. in Agricultural Engineering from the University of Illinois at Urbana-Champaign. Dr. Shaw teaches and conducts air quality research on topics including development of accurate emission factors for feed and grain handling,emissions from cattle feed yards, development of air pollution dispersion models, and fugitive dust emissions from field operations. Dr. Shaw recently spent one year working with USDA-NRCS as Special Assistant to the Chief under an Interagency Personnel Agreement. Inthis role he provided national leadership in the development of policies and programs to address agricultural air quality concerns.

Smith,John R.

Alcoa Technical Center

John R. Smith has over 25 years experience in the environmental sciences and engineering field where he has dealt with numerous aspects of site remediation, treatment of plant process waters and wastewaters, and sustainable development technology initiatives. He has a Ph.D. in Civil/Environmental Engineering from Carnegie-Mellon University and is a registered professional engineer in Pennsylvania. Dr. Smith is recipient of the Best Research Paper Award from the American Society of Civil Engineers Practice Periodical in 2001, the Jack Edward McKee Medal from the Water Environment Foundation in 2000, and the Linn H. Enslow Memorial Award from the New York State Water Association in 1994. He is currently employed with Alcoa Inc. and is also an Adjunct Professor in the Civil/Environmental Engineering Department at Carnegie-Mellon University.At Alcoa Inc., Dr. Smith manages the EHS Sciences & Technology Section. Presently, his main focus is to establish sustainable development initiatives within Alcoa via the innovative integration of EHS (environment, health, safety) into all new and existing products and production processes. Such work specifically relates to developing, evaluating and implementing technically viable and cost-efficient ways to treat, minimize and/or eliminate water and wastewater discharges, solid waste generation, and air pollutant discharges by addressing such issues via innovative modifications to production process and/or operations, rather than the more conventional end-of-pipe treatment approaches. Focus is also given to implementing energy efficiency, safe work practices and providing a healthy work environment associated with production operations. Here, the ultimate goal is to first address, and then move beyond, EHS compliance in a cost-efficient manner while at the same time moving towards more efficient production and more sustainable products, thus providing Alcoa, their employees and the communities in which they operate with a safe and sustainable future. Dr. Smith also provides remediation consulting within Alcoa on strategically significant issues. (November 2003)

Theis,Thomas

University of Illinois at Chicago

Professor Thomas L. Theis is Director of the Institute for Environmental Science and Policy at the University of Illinois - Chicago, a center that focuses on the development of new cross-disciplinary research initiatives in the environmental area. He was most recently at Clarkson University, where he was the Bayard D. Clarkson Professor and Director of the Center for Environmental Management. Professor Theis received his doctoral degree in environmental engineering, with a specialization in environmental chemistry, from the University of Notre Dame. His areas of expertise include the mathematical modeling and systems analysis of environmental processes, the environmental chemistry of trace organic and inorganic substances, interfacial reactions, subsurface contaminant transport, hazardous waste management, industrial pollution prevention, and industrial ecology. He has been principal or co-principal investigator on over fifty funded research projects totaling in excess of eight million dollars, and has authored or co-authored over one hundred papers in peer reviewed research journals, books, and reports. He is past editor of the Journal of Environmental Engineering, and has served on the editorial boards of The Journal of Contaminant Transport, and Issues in Environmental Science and Technology. From 1980-1985 he was the co-director of the Industrial Waste Elimination Research Center (a collaboration of Illinois Institute of Technology and University of Notre Dame), one of the first Centers of Excellence established by the USEPA. In 1989 he was an invited participant on the United Nations' Scientific Committee on Problems in the Environment (SCOPE) Workshop on Groundwater Contamination, and in 1998 he was invited to by the World Bank to assist in the development of the first environmental engineering program in Argentina. Among his current projects is the Environmental Manufacturing Management Program, one of the Integrative Graduate Education Research and Training (IGERT) grants of the National Science Foundation, which involves research on industrial pollution prevention problems emphasizing a systems approach.(11/2003)

Thomas,Valerie

Princeton University

Dr. Valerie Thomas is a Research Scientist at the Princeton Environmental Institute at Princeton University. Dr. Thomas received a Ph.D. in theoretical physics from Cornell University, and a B. A. in physics from Swarthmore College. She was a post-doctoral Research Fellow at the Department of Engineering and Public Policy at Carnegie Mellon University. Her expertise is in quantitative approaches to environmental assessment, such as the physical potential to use different materials in products, or the application of statistical approaches to environmental data. She also has expertise in the lifecycle environmental impacts of products and materials, including metals and electronics. Current research is in the area of industrial ecology, including the use of electronics and information technology for lifecycle management of products, and the demand and dematerialization impacts of second-hand markets, combining theoretical economic analysis with physical material flow assessment. She teaches a graduate course called "The Use of Science in Environmental Policy", and is co-author of the book "Industrial Ecology and Global Change," (Cambridge University Press, 1994). She is a Fellow of the American Physical Society, and a member of the International Society for Industrial Ecology. She will be vice-chair of the Gordon Conference on Industrial Ecology in 2004 and chair in 2006. She has had recent funding from the US EPA STAR grants program and the National Science Foundation (12/2003).